Biosketches of Members of the US EPA Science Advisory Board (SAB) Trichloroethylene Health Risk Assessment: Synthesis and Characterization Review Panel (TCE Review Panel).

Anderson, Henry: Wisconsin Division of Public Health, Proposed Chair of the TCE Review Panel and Current Chair of the SAB's Environmental Health Committee. Also a current member of the SAB Executive Committee.

In 1980 Dr. Anderson joined the Wisconsin Department of Health and Social Services as the State Environmental and Occupational Disease Epidemiologist. In 1991 he also assumed the duties of Chief Medical Officer. Among his duties for the State of Wisconsin has been the development of the scientific support documents for Wisconsin's Groundwater Enforcement Standards. One standard promulgated was for TCE. He was also responsible for state fact sheets on TCE in air and at hazardous waste sites.

He received his MD degree in 1972 and entered an Internal Medicine internship and then an occupational medicine residency. He was certified in 1977 by the American Board of Preventive Medicine with a sub-specialty in occupational and environmental medicine and in 1983 became a fellow of the American College of Epidemiology. He holds adjunct Professorships at the University of Wisconsin - Madison, Department of Preventive Medicine and the University of Wisconsin Institute for Environmental Studies, Center for Human Studies. He has published over 160 scientific articles on a broad spectrum of environmental, occupational and public health topics. He is principal investigator on nine active grants and cooperative agreements from federal government agencies including the U.S. EPA. None of these focus upon TCE, although the ATSDR Superfund Site Assessment Cooperative Agreement has evaluated sites contaminated with TCE and conducted exposure assessments.

His US EPA funded research grants address children's health issues, such as reproductive and endocrine function of frequent Great Lakes sport fish consumers and evaluation of women's awareness of mercury toxicity and sport fish consumption advisories. Other current research includes, childhood asthma, lead poisoning, arsenic in drinking water, youth occupational health, occupational fatalities and bioterrorism response. His expertise includes public health, preventive, environmental and occupational medicine, respiratory diseases, epidemiology, human health risk assessment and risk communication.

He was a founding member of the Agency for Toxic Substances and Disease Registry (ATSDR) Board of Scientific Councilors (1988-1992). He served on National Academy of Sciences/Institute of Medicine (NAS/IOM) committees that developed the reports "Injury in America" and "Nursing, Health & Environment." He was a member of the Armed Forces Epidemiology Board. He is current chair of the Environmental Health Committee of the USEPA Science Advisory Board and past chair of the SAB Integrated Human Exposures Committee. He serves on the USEPA SAB Executive Committee. He serves on several other FACA committees including the Director's Advisory Board for the National Center for Environmental Health, Centers for Disease Control and Prevention, the Hanford Health Effects Subcommittee for ATSDR and is a member of the NIOSH Advisory Board on Radiation and Worker Health. He is a fellow of the Collegium Ramazzini and the American Association for the Advancement of Science. He is associate editor of the *American Journal of Industrial Medicine* and serves on the editorial board of *Cancer Prevention International*.

Blair, Aaron: National Cancer Institute, National Institute of Health

Dr. Blair is Chief of the Occupational Epidemiology Branch of the Division of Cancer Epidemiology and Genetics, National Cancer Institute. His research has focused on cancer risks from agricultural exposures, industrial chemicals, physical inactivity, occupational exposures among women, and methodololologic issues in occupational epidemiology. He has over 250 publications. He has evaluated the risk of non-Hodgkin's lymphoma, leukemia, and multiple myeloma among farmers in the first case-control studies to obtain detailed information on pesticide used and application practices. This work has culminated the development of the Agricultural Health Study, a long-term prospective study of 90,000 farmers and their spouses in Iowa and North Carolina. His studies of cancer mortality among workers exposed to the important industrial chemicals formaldehyde and acrylonitrile were among the first to employ sophisticated algorithms to develop quantitative estimates of exposure in multi-company studies. He has evaluated cancer risks among women in studies of dry cleaners and aircraft maintenance workers, who have significant exposures to various organic solvents including tetrachloroethylene and trichloroethylene. Methodologic studies have focused on confounding, meta-analysis, and misclassification in exposure assessment.

Dr. Blair has served on: IARC Monograph Working Groups; Environmental Protection Science Advisory Panel Subgroup on Atrazine; Federal Panel on Formaldehyde; National Center for Toxicologic Research Consensus Conference on Formaldehyde; IARC Workshop on Priorities for Epidemiologic Studies on Occupational Cancer; Advisory Committee to Trans-Canadian Study of Lymphatic and Hematopoietic Cancers; Task Force on Environmental Cancer and Heart and Lung Disease; Advisory Panel to Bureau of Chronic Disease, Health and Welfare, Canada on Future Research Directions; Farmers Study Advisory Committee, Health and Welfare, Canada; Advisory Group for Canadian Environmental Health Survey, Health and Welfare, Canada; NIH Inter-Institute Breast Cancer Working Group; Science Advisory Committee for the Lower Mississippi River Interagency Cancer Study; Louisiana State University Medical School; DHHS Environmental Health Policy Committee Subcommittee of Data Needs; Expert Panel on Domestic Use of Pesticides, National Cancer Institute of Canada; NCI Program Review Group on Leukemia, Lymphoma, and Multiple Myeloma; Cancer Research Methods Team; National Occupational Research Agenda, NIOSH; NCI Intramural Advisory Board; National Toxicology Board of Scientific Counselors; and on Organizing Committees for Conferences on Assessment of Smoking in Occupational Studies, Exposure Assessment in Occupational Investigations, and Physical Activity and Cancer.

He has served on Editorial Boards of the *American Journal of Epidemiology*, *Scandinavian Journal of Work, Environment and Health*, and the *Journal of Agricultural Safety and Health*. Dr. Blair is a member of the American Epidemiologic Society and a Fellow and Board Member of the American College of Epidemiology.

Academic Degrees: B.A., Kansas Wesleyan University 1965 Biology; M.S. North Carolina State University, 1967, Botany; Ph.D .North Carolina State University, 1970, Genetics; M.P.H., University of North Carolina, 1976, Epidemiology.

Borghoff, Susan J.: CIIT Centers for Health Research

Dr. Susan Borghoff has been a Staff Scientist at CIIT Centers for Health Research in the Research Triangle Park, North Carolina since 1989 following her postdoctoral fellowship. Prior to her position at CIIT, Dr. Borghoff was a graduate student at the University of North Carolina and conducted her research at the National Institute for Environmental Health Sciences (NIEHS). Along with Dr. Borghoff's research program at CIIT she is also the Director of Education Programs which involves oversight of the pre- to post- graduate training programs and K-12 educational outreach activities. Her research interests have focused on understanding the mode-of-action by which specific chemicals cause kidney toxicity and cancer in rats with a view to understanding the relevance of this response for human risk assessment. Her research has also focused on understanding the metabolism and pharmacokinetics of various chemicals with emphasis on the development of physiologically based pharmacokinetic models that can be used for risk assessment. Currently Dr. Borghoff's research is focused on the developmental pharmacokinetics of estrogen-like compounds such as genistein. CIIT Centers for Health Research is a not-for-profit research institution in which the major core funding is a grant from the American Chemistry Council Long-Range Research Initiative. Other financial support comes from government agencies (U.S. Environmental Protection Agency (USEPA) and NIEHS), independent research organizations, trade associations, and corporations. Dr. Borghoff's research projects have been funded both by the Core research program and through specific research grants from Oxygenated Fuels Association, American Petroleum Institute, American Chemistry Council and ARCO (now Lyondell) Chemical Company. She has recently accepted an opportunity to consult for Huntsman Chemical Company which involves conducting a literature review on what is known on the health effects of methyl tertiary butyl ether.

Edler, Lutz: German Cancer Research Center

Dr. Edler is the Head of Biostatistics at the Research Programme Genome Research and Bioinformatics of the German Cancer Research Center in Heidelberg Germany. He holds a Dipl. Math (M.S.) Mathematics, Physics from the Albert-Ludwigs-University, Freiburg, FRG and a Dr. rer. nat (Ph.D.) Mathematics from Johannes-Gutenberg-University, Mainz, FRG. His major areas of research are: Mathematical-statistical modeling of carcinogenesis and risk assessment; Pharmacokinetics and development of methodology for clinical oncology with a strong emphasis on the application computational statistics; Statistical Computing; Biostatistical Methods in Design and Analysis of Experiments; Mathematical and Statistical Modeling in Oncology; and Survival Analysis and Clinical Trials.

From 1990-1991 he was a Visiting Scientist, National Institute of Environmental Health Sciences, Division of Biometry and Risk Assessment, Research Triangle Park, U.S.A..

He has listed the following “Expert Meetings” in which he has participated: (1994) DAAD, Bad Godesberg; (1994) Human PBPK Models for TCDD, NIEHS, Research Triangle Park, USA; (1994, 1998) EUROSTAT, Luxembourg; (1998) Risk Assessment of Electromagnetic Waves, US NIEHS, Tucson, AZ, USA; (2000) Risk Assessment of Dioxin, US EPA, Fort Collins, USA; 5th Framework Program, EU, Brussels; (1998) Rapporteur at EMF Science Review Symposium of the NIEHS, Phoenix, AZ; and (2002) Working Group of US-Vietnam Scientific Conference on Human Health and Environmental Effects of Agent

Orange/Dioxins, March 2002, Hanoi, Rep Vietnam.

He is a member of the following professional societies: American Statistical Association (ASA); Drug Information Association (DIA); International Biometric Society, German Region (IBS.DR); International Society for Clinical Biostatistics (ISCB); International Association for Statistical Computing (IASC); Bernoulli Society; Deutsche Krebsgesellschaft (DKG); Gesellschaft fuer Medizinische Dokumentation und Statistik (gmds); and International Statistical Institute (ISI, elected).

Professional Activities include: (1991-1995) Scientific Secretary International Association for Statistical Computing (IASC); (1995-1997) Vice President of the International Association for Statistical Computing (IASC); (1999 -2001) President of the International Association for Statistical Computing (IASC); (1993-1997) Member of the Council of the German Region International Biometric Society; (1998-2002) Member of the Council of the International Biometric Society; and (1993- now) Member of the Animal Protection Commission at the RegPr. Karlsruhe. Currently he is 2002 Co-Organizer of the Session `Clinical Trial" at the International Biometric Conference, Freiburg, Germany; 2002 Coorganizer of the Session `Pharmacogenetics and Pharmacogenomics Data Analysis Methods in Future Clinical Trials', 38th DIA Annual Meeting, Chicago; 2003 Chair of the International Organizing Committee of the International Conference on Carcinogenesis Risk Assessment (ICCRA), Athens, Greece; and 2004 Co-Chair of the Local Organizing Committee of the Biometrical Colloquium of the German Region of the International Biometric Society, Heidelberg, Germany.

His grants include: (Feb. 1991) Visitor at the Universidad Nacional de Colombia at Bogota, Columbia; (1990) DFG Travel Grant for 48th Session of the ISI in Cairo, Egypt; (June, 1993) DAAD Travel Grant for a visiting lectureship in Columbia; (1995) DFG Travel Grant for 50th Session of the ISI in Beijing, China; (Sep-Dec 1995) Consulting National Institute of Statistical Sciences (NISS), Res.Triangle Park; and (Aug-Sep 2001) KOSEF-DFG Visiting Scientist Grant, Yonsei University, Seoul, South-Korea.

He serves on the following committees and Advisory Boards: Advisor for the Collaborative Project on Knowledgebased Systems in Medicine; Reviewer for the Government Department of Research and Technology Funding Programme; Reviewer for the DFG; - Extramural Review Board of the AIO (German Cancer Society); Project Assessment Committee of the Phase I/II Study Group of the AIO; Independent Safety Committee for Boehringer Mannheim Co.; and Reviewer for the German Cancer Society and Krebshilfe.

Currently his editorial tasks include: (since 1993) Associate Editor of Computational Statistics and Data Analysis (CSDA) and Associate Editor of ONKOLOGIE; (since 1994) Associate Editor of the Biometrical Journal (Biometrische Zeitschrift); (since 1999) Associate Editor of Journal of Cancer Research and Clinical Oncology; and (since 2002) Editor of the Virtual Online Journal "Biostatistics" (Elsevier, Publ.)

Hattis, Dale: Clark University (Current member, SAB Environmental Health Committee)

Dale Hattis is Research Professor with the Center for Technology Environment and Development (CENTED) of the George Perkins Marsh Institute at Clark University. For the past twenty-seven years he has been engaged in the development and application of methodology to assess the health ecological and economic impacts of regulatory actions. His work has focused on the development of methodology to incorporate interindividual variability data and quantitative mechanistic information into risk assessments for both cancer and non-cancer endpoints.

Specific studies have included quantitative risk assessments for hearing disability in relation to noise exposure renal effects of cadmium reproductive effects of ethoxyethanol neurological effects of methyl mercury and acrylamide and chronic lung function impairment from coal dust four pharmacokinetic-based risk assessments for carcinogens (for perchloroethylene ethylene oxide butadiene and diesel particulates) an analysis of uncertainties in pharmacokinetic modeling for perchloroethylene and an analysis of differences among species in processes related to carcinogenesis.

He has recently been appointed as a member of the Environmental Health Committee of the EPA Science Advisory Board and for several years he has served as a member of the Food Quality Protection Act Science Review Board. Currently he is also serving as a member of the National Research Council Committee on Estimating the Health-Risk-Reduction Benefits of Proposed Air Pollution Regulations.

The primary source of his recent cooperative agreement support is the U.S. Environmental Protection Agency and specifically the Office of Research and Development's National Center for Environmental Assessment. This research includes: (1) Age related differences in susceptibility to carcinogenesis; towards a quantitative analysis of empirical data. Instrument number (Term: April 2002-Sept 2003); (2) Methods for evaluating human interindividual variability regarding susceptibility to particulates (Term Sept 98--September 2002); and (3) also funding from the State of Connecticut to work on Child/Adult differences in pharmacokinetic parameters, as a subcontractor as part of a cooerative agreement.

He has been a councilor and is a Fellow of the Society for Risk Analysis and serves on the editorial board of its journal *Risk Analysis*. He holds a Ph.D. in Genetics from Stanford University and a B.A. in biochemistry from the University of California at Berkeley.

Hoel, David: Medical University of South Carolina (Current member, SAB Environmental Health Committee)

David G. Hoel, Ph.D., is a Distinguished University Professor at the Medical University of South Carolina. Dr. Hoel received his A.B. degree in Mathematics and Statistics from the University of California at Berkeley and his Ph.D. from the University of North Carolina at Chapel Hill and has more than 25 years of experience as a biostatistician, toxicologist and environmental health researcher.

Dr. Hoel's research specialties include: environmental causes of cancer, risk assessment models; statistical and mathematical applications in biology and medicine; epidemiology; and radiation health effects. Dr. Hoel is widely published, having authored or co-authored over 160 journal articles and co-editor of several books and journals. He serves on a variety of national

association committees and panels, such as a member of the Institute of Medicine, Agent Orange Committees, EPA's Science Advisory Board.

He is a member of the National Academy of Sciences Institute of Medicine, is a National Associate of the National Academy of Sciences and National Research Council and a Fellow for the American Association for the Advancement of Science. Before joining the faculty at the Medical University Dr. Hoel was a division director at the NIEHS of NIH. This division was made up of four branches with responsibility for the Institute's program in biostatistics, epidemiology and molecular toxicological risk assessment.

Sources of recent grant and/or contract support: include: (1) Savannah River Site Former Production Workers Medical Surveillance Program – Phase II Year Continuation (funded by the Department of Energy)--the goal of this project is to assess occupational exposures reviewed by former DOE workers at SRS and conduct appropriate medical examinations in order to evaluate work related illness and risk.; (2) "Low Dose Radiation Project" (funded by the Department of Energy, Environmental Biosciences Program); the goal of this project is to develop methods for estimating cancer risks from low dose and low dose rate ionizing radiation; (3)."Radiation Leukemogenesis: Applying Basic Science to Epidemiology Estimates of Low Dose Risks and Dose-Rate Effects"(funded by the Department of Energy)--the goal of this project is to incorporate biological information into mathematical models of radiation induced leukemias; and (4)"Radiation Risk Analysis: Model Issues and Interspecies Extrapolation"(funded by the National Opinion Research Center/NASA)--the goal of this project is to use and evaluate experimental animal data for estimation of human health risks from radiation.

Lambert, George: Robert Wood Johnson Medical School/ University of Medicine and Dentistry of New Jersey (Current member, SAB Environmental Health Committee)

Dr. Lambert is Associate Professor of Pediatrics, Director Division of Pediatric Pharmacology and Toxicology at the University of Medicine and Dentistry of New Jersey, Robert Wood Johnson Medical School – Piscataway/New Brunswick. He is also the Director of the NIEHS/EPA Center for Childhood Neurotoxicology and Exposure Assessment, which is located at the Environmental and Occupational Health Sciences Institute, a jointly sponsored institute of Rutgers, The State University of New NJ and UMDNJ-Robert Wood Johnson Medical School

He holds a B.S. in zoology from University of Illinois, Champaign-Urbana (1968) and an M.D. from the University of Illinois, Chicago, IL (1972).

Recent grants and other outside funding sources include the following: (1) a grant to study the Reproductive Outcomes of the World Trade Center Tragedy (funded by National Institute of Environmental Health Sciences) (2) a grant to determine the influences of environmental exposure to neurotoxicants on child neurological health and development with special emphasis on autism and related disabilities (funded jointly by the National Institute of Environmental Health Sciences and the Environmental Protection Agency) (3) a grant to study the effects of Herbal Phytoestrogens & Prostate Cancer (funded by the Cancer Commission of New Jersey); (4) Effects of eating Crabs with PCBs and Dioxin Laden on Human Health (funded by the New Jersey Department of Environmental Regulations); (5) a grant to study the role of gene polymorphisms in Birth Defects. (funded jointly by the Centers for Disease Control and the NJ State Birth Defects Registry); and (6) the correlation between hypospadism and

xenoestrogens (funded jointly by the Centers for Disease Control and the New Jersey Department of Health).

Lemasters, Grace: University of Cincinnati (Current member, SAB Environmental Health Committee)

Dr. Lemasters is a Professor in the Division of Epidemiology and Biostatistics Department of Environmental Health, College of Medicine, University of Cincinnati and former head of Epidemiology and Biostatistics in the Department of Environmental Health, College of Medicine.

She holds a Ph.D., Department of Environmental Health, College of Medicine, University of Cincinnati, Epidemiology and Environmental Health Science; M.S.N, University of Cincinnati; and a B.S.N., Indiana University.

For almost three decades she has conducted researched in occupational and environmental epidemiology and investigating health effects including ergonomics and musculoskeletal research, respiratory disease, cytogenetic effects, and childhood allergy and asthma. Dr. LeMasters is a national and international expert in occupational and environmental health studies and has published numerous scientific articles and book chapters book in the areas of exposures and health effects and study design methodologies.

She has conducted research on men and women in the military for over 15 years examining the effects of exposures to fuels and solvents on cytogenetics, female hormones, male reproduction and neurological effects. Other areas of research include a 15-year pulmonary longitudinal study of the health effects of refractory ceramic fiber exposure (substitute for asbestos) and lung cancer and lung disease. She has recently received funding as the principle investigator on a 5-year study on diesel exposure and atopy and respiratory disorders in children. Other current research includes the following: caffeine effects on female hormones during early pregnancy, occupational risk factors related to falls, and exposures of women in the military to jet fuel and hormonal changes.

Among her service on Committees and Associations she lists: Federal Advisory Committee on Children's Health NICHD (2002-); Armed Forces Epidemiological Board (2001-present); Reviewer Department of Defense PRMRP (July 11-13, 2001; Member National Toxicology Program Board of Scientific Counselors of the Office of the Assistant Secretary and Surgeon General (1999-2002); Editorial Board: Occupational and Environmental Medicine (1996-2001); Editorial Board: Journal of Reproductive Toxicology (1991-); Fellow, American College of Epidemiology; Member, Society for Epidemiology Research; and Member: Sigma Theta Tau Alpha and Beta Honors Chapters.

Current sources of recent grant and/or contract support are the: Environmental Protection Agency; NIH-CDC/NIOSH; NIH-NIEHS; and the Refractory Ceramic Fiber Coalition.

Li, Abby: Monsanto Company (Current member, SAB Environmental Health Committee)

Dr. Abby Li received her Ph.D. from the University of Chicago in pharmacology and physiology. She is currently a Senior Science Fellow at Monsanto. She is a toxicologist in the Department of Toxicology and Human Health Risk Assessment. She has specialized expertise in neurotoxicology as well as product stewardship responsibilities involving general toxicology, exposure and risk assessment issues. Dr. Li has conducted numerous studies primarily for regulatory submission in neurotoxicology in adult and developing rats, in humans and in vitro systems.

She was Monsanto's Neurotoxicology Team Leader responsible for developing testing capabilities at Monsanto including motor activity, schedule controlled operant behavior, functional observational battery, auditory startle habituation, learning and memory and neuropathology. She has also conducted *in vivo* pharmacokinetic studies (ADME studies) and *in vitro* metabolism studies. Dr. Li served on the Editorial Board of *Neurotoxicology* from 1995-2001.Dr. Li was invited by the US EPA country representative to serve on the US team of experts to develop international OECD guidelines on neurotoxicity (1995 - 1998) and developmental neurotoxicity (1996-2000). Dr. Li is the Chair of the Neurotoxicology Technical Panel of the American Chemistry Council's Long Range Initiative (ACC LRI) responsible for funding research to advance the field of neurotoxicology in focus areas such as susceptible populations, and in developing new methods for hazard and exposure assessment. She served as Co-Chair of Crop Life America's Developmental Neurotoxicology Working Group in 2000 and is currently a member of this group. She is a member of the EPA's Science Advisory Board's Environmental Health Committee and reviewed the EPA's 1999 draft cancer guidelines, the RfC Methods Case Studies, and the Lead 403 Rule among other documents. Dr. Abby Li was a peer consultant to the September 10-11, 1996 EPA Benchmark Dose Peer Consultation Workshop

Luderer, Ulrike: University of California at Irvine (Current member, SAB Environmental Health Committee)

Dr. Ulrike Luderer is Assistant Professor of Medicine in the Division of Occupational and Environmental Medicine at the University of California at Irvine. She also holds joint appointments in the Departments of Developmental and Cell Biology and Environmental Toxicology. Dr. Luderer's research focuses on mechanisms of action of reproductive toxicants and on protective mechanisms against those toxicants. She is a recipient of a National Institute of Environmental Health Sciences research grant (2002-2007) entitled "Glutathione:Protecting Ovarian Follicles from Oxidant Injury" and a co-investigator on an EPA grant "Latent Effects of Gestational Exposure to Heptachlor" She has published peer-reviewed journal articles and book chapters and presented research at national and international scientific conference on such topics as the effects of toluene exposure on reproductive endocrine function, the functions of and regulation of glutathione in the ovary, the differential regulation of follicle-stimulating hormone and luteinizing hormone secretion, and reviews of reproductive and developmental and endocrine toxicology. She has served on the National Toxicology Program/NIEHS Center for the Evaluation of Risks to Human Reproduction Expert Panel on 1- and 2-Bromopropane and on the National Research Council subcommittee on methyl bromide. She is currently member of

the EPA SAB's Environmental Health Committee. Dr. Luderer has a Ph.D. in reproductive endocrinology and an M.D. from Northwestern University and is board-certified in Internal Medicine and in Occupational and Environmental Medicine. She has a Sc.B. in biomedical engineering from Brown University.

McClain, Michael: McClain Associates

Dr. R. Michael McClain is currently an Adjunct Professor University of Medicine and Dentistry of NJ and now works primarily as a consultant in toxicology. He was formerly a Distinguished Research Leader and Director of Toxicology, Hoffmann-La Roche, Inc. Dr. McClain received his Ph.D. from the Department of Pharmacology at the University of Iowa and B.S. and M.S. degrees from Duquesne University. Dr. McClain is a Diplomate of the American Board of Toxicology and a Fellow of the Academy of Toxicological Sciences. He has worked in the pharmaceutical industry for over 30 years in the areas of teratology and reproductive toxicology, general toxicology and carcinogenicity testing. His research activities are involved primarily in mechanisms of chemical carcinogenesis for thyroid, liver and adrenal and regulatory aspects for cancer risk assessment. He has been active in the Pharmaceutical Research and Manufactures Association and PhRMAs efforts on harmonizing international guidelines for drug development (ICH). He has been involved with the ILSI organization and served as President of the ILSI's Health and Environmental Science Institute (HESI) and as a member of ILSI's Board of Trustees. Dr McClain is a member of the National Advisory Environmental Health Sciences Council for NIEHS. Dr. McClain is also active in the Society of Toxicology having served a term as Treasurer and as President of the Society in 1998

Melnick, Ronald: National Institute of Environmental Health Sciences

Dr. Melnick is a Senior Toxicologist and Director of Special Programs in the Environmental Toxicology Program at the National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health in Research Triangle Park, North Carolina. Prior to this position he was Group Leader of the Toxicokinetic and Biochemical Modeling Group in the Laboratory of Computational Biology and Risk Analysis at NIEHS. Dr. Melnick obtained his B.S. degree from Rutgers University and his Ph.D. in food science/biochemistry from the University of Massachusetts at Amherst. He was a postdoctoral research fellow in the Department of Physiology-Anatomy at the University of California in Berkeley and then an assistant professor of life sciences at the Polytechnic Institute of New York. At NIEHS he has been involved in the design, monitoring and interpretation of NTP toxicity and carcinogenesis studies, as well as mechanistic studies to characterize the behavior of environmental carcinogens. He spent one year as an agency representative to the White House Office of Science and Technology Policy to work on interagency assessments of health risks of environmental agents and on risk assessment research needs in the Federal government. Dr. Melnick has organized several national and international symposiums and workshops on health risks associated with exposure to environmental and occupational toxicants. He has also served on numerous scientific review and advisory panels, including the working group of the International Agency for Research on Cancer (1995) that classified trichloroethylene as probably carcinogenic to

humans. Dr. Melnick has served on several committees at NIEHS, including Chair of the Toxicokinetic Faculty and member of the NIEHS review group for the NTP Report on Carcinogens. The latter group reviewed data on trichloroethylene for listing in the Report on Carcinogens. Dr. Melnick is a Fellow of the Collegium Ramazzini. As a federal employee, he does not receive any grant or contract support.

Solomon, Gina: Natural Resources Defense Council

Dr. Gina Solomon is a Senior Scientist at the Natural Resources Defense Council in San Francisco and an Assistant Clinical Professor of Medicine at the University of California at San Francisco. Dr. Solomon is a specialist in internal medicine, preventive medicine, and occupational and environmental medicine. Her work has focused on environmental and occupational threats to reproductive health and child development. She attended medical school at Yale and underwent post-graduate training in medicine and public health at Harvard.. Dr. Solomon served on the U.S. EPA's Federal Advisory Committee on endocrine disrupting chemicals and is a scientific advisor to numerous organizations including the California Department of Health Services Environmental Epidemiology Section and the Pediatric Environmental Health Specialty Unit at U.C. San Francisco. Dr. Solomon has published peer-reviewed articles on various topics, including solvents and miscarriage, endocrine disruptors, diesel exhaust and asthma, and contaminants in breast milk. She is a co-author of the book, Generations at Risk: Reproductive Health and the Environment, published by MIT Press in 1999.

Whyatt, Robin: Department of Environmental Health Sciences

Dr. Robin Whyatt is Deputy Director of the Columbia Center for Children's Environmental Health and is Assistant Professor in the Department of Environmental Health Sciences at the Mailman School of Public Health, Columbia University. Dr. Whyatt's research focus is on the effects of environmental exposures on women and children, including the developing fetus. Prior to coming to Columbia in 1991, she evaluated the extent of pesticide exposure in the preschooler's diet as Senior Staff Scientist at the Natural Resources Defense Council (NRDC). Her research at Columbia University has used biologic markers to study effects of environmental exposures during pregnancy. This has included a molecular epidemiologic study of prenatal exposures to ambient air pollution and cigarette smoking in Poland. Dr. Whyatt's is currently collaborating on a comprehensive community-based study of environmental risks to African American and Dominican mothers and newborns in Northern Manhattan and the South Bronx. The prospective cohort study is evaluating effects of environmental exposures on fetal growth, neurocognitive developmental and asthma risk. Dr. Whyatt's focus is on the extent of exposure to non-persistent pesticides (organophosphates, carbamates and pyrethroids) during pregnancy among this minority population. Dr. Whyatt is also collaborating with the Center for Disease Control on the validation of biomarkers of exposure to contemporary-use pesticides during pregnancy. Dr. Whyatt has published widely on the application of biologic markers to studies of environmental risks to infants and children and on the effects of environmental exposures during fetal development. She is currently principal investigator on three grants: a U.S. EPA STAR grant to validate the measurement of non-persistent pesticides in postpartum meconium as a biomarker of fetal exposure; a NIEHS

RO1 grant to validate a battery of biomarkers of prenatal exposure; and on an intervention grant from the Speaker's Fund for Public Health Research to reduce residential pesticide exposures during pregnancy. Dr. Whyatt served on the U.S. EPA Workshop, Critical Windows of Exposure for Children's Health, and on the U.S. EPA Workshop, Technical Workshop on Issues Associated with Considering Developmental Changes in Behavior and Anatomy when Assessing Exposure to Children. She was Co-chair of the Symposium on Alternative Human Matrices for Biomonitoring, at the 2001 International Agency for Exposure Assessment, Charleston, South Carolina and is currently serving on the Exposures to Chemical Agents Work Group of the National Children's Longitudinal Cohort Study. Dr. Whyatt received her Doctorate in Public Health (Dr.P.H.) from Columbia University with honors in 1995 and her Masters in Public Health (M.P.H) from Columbia University in 1985.

Yang,Raymond: Colorado State University,

Raymond S. H. Yang is presently Professor of Toxicology and Director of Center for Environmental Toxicology and Technology, one of 14 Programs of Research and Scholarly Excellence at Colorado State University (CSU). Between July 1990 and June 1995, Dr. Yang served as the Head, Department of Environmental Health, College of Veterinary Medicine and Biomedical Sciences, CSU, Fort Collins, CO. Prior to joining CSU in 1990, Dr. Yang spent seven years each in chemical industry (Bushy Run Research Institute, Union Carbide - Mellon Institute, 1976 - 1983) and in the federal government [National Institute of Environmental Health Sciences/National Toxicology Program (NIEHS/NTP), 1983 - 1990].

Dr. Yang received his B.S. in Biology from the National Taiwan University in 1963; M.S. and Ph.D. in Toxicology/Entomology from North Carolina State University in 1967 and 1970, respectively. Between 1970 and 1973, he was a postdoctoral fellow at Cornell University. Between 1973 and 1976, he was Research Associate and then Assistant Professor at the Institute of Comparative and Human Toxicology, Albany Medical College. Dr. Yang had also been appointed Adjunct Associate Professor at University of Pittsburgh and Adjunct Professor at North Carolina State University.

Dr. Yang's research expertise and interests cover many subdisciplines in toxicology, including toxicology of chemical mixtures, toxicologic interactions, physiologically based pharmacokinetic/pharmacodynamic (PBPK/PD) modeling, biologically based dose-response (BBDR) modeling, carcinogenesis and neuro-developmental toxicology. Between 1992 and 2000, he served as the Program Director of the NIEHS Superfund Basic Research Program Project at CSU and since the summer of 1999 he has been the Program Director for an NIEHS Quantitative Toxicology Training Grant. Since 1990, Dr. Yang has been developing an interdisciplinary research program on Quantitative and Computational Toxicology using the central theme of PBPK/PD, BBDR, and reaction network modeling of chemicals and chemical mixtures at CSU.

Dr. Yang's committee work includes serving as a Committee or Expert Panel Member for the following Committee/Panel or organizations: National Academy of Sciences/National Research Council Safe Drinking Water Subcommittee on Mixtures; USEPA/Environmental Criteria Assessment Office (ECAO); Screening and Testing Work Group of the Endocrine Disruptor Screening and Testing Advisory Committee, USEPA; Electric Power Research Institute (EPRI); Expert Panel Member, Risk Assessment for Mixtures of Drinking Water

Disinfection-Byproducts, International Life Sciences Institute/USEPA; Institute of Medicine, National Academy of Sciences Committee to Study the Interactions of Drugs, Biologics, and Chemicals in Deployed U. S. Military Forces; Chair for a Chemical Mixture Workshop Agency for Toxic Substances and Disease Registry (ATSDR); Health Council of the Netherlands; Society of Toxicology Expert Panel on Chemical mixtures; Chemical Mixture Committee member to National Occupational Research Agenda, NIOSH; and NIEHS Environmental Health Sciences Review Committee. Dr. Yang's research support came principally from the National Institute of Health (NIH), U.S. Air Force, U.S. Environmental Protection Agency (EPA), ATSDR, and Center for Disease Control and Prevention (CDC)/National Institute of Occupational Safety and Health (NIOSH).